

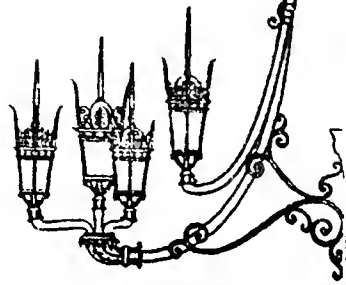
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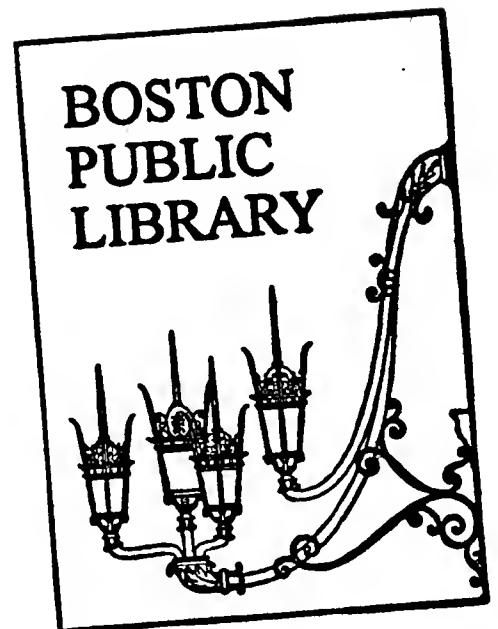
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RETAIL PROGRAMS AND ACTION STRATEGIES FOR DUDLEY SQUARE

Prepared for the
BOSTON REDEVELOPMENT AUTHORITY

Prepared by
MELVIN F. LEVINE & ASSOCIATES, INC.

JANUARY 20, 1990



RETAIL PROGRAMS AND ACTION STRATEGIES FOR DUDLEY SQUARE

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EXECUTIVE SUMMARY

The purposes of this report are:

- a. to present a short-range Retail Program for the Dudley Square Business District and an Immediate Action Strategy for achieving that program (Phase I); and
- b. to present a long-range Retail Program for Dudley Square and to propose an Economic Development Strategy on the demand side, and a Unified Development strategy on the supply side to achieve that program (Phase II).

The amount of space devoted to retail stores, restaurants, consumer services and banks in the Dudley Square business district is 246,000 s.f.

The 203,000 s.f. retail component of this program has sales of \$ 38.0 million a year (\$ 190/s.f.).

A Phase I Retail Program of 230,000 s.f. would operate at \$ 46.0 million a year (\$ 200/s.f.).

A Phase II Retail Program of 290,000 s.f. would operate at \$ 58.0 million a year (\$ 200/s.f.).

Aggressive Action Strategies are proposed to achieve these retail sales goals:

- I. An Immediate Action Strategy to improve public safety & maintenance, parking, design, and marketing on the supply side, so as to attract more business from the existing household and income base in the Roxbury trade area from which Dudley Square derives most of its customers. The Action Strategy would be supported by in-kind services from public agencies and payments by merchants of a percentage of the increase in sales to be generated by the Action Strategy.
- II. An Economic Development Strategy to create new jobs, to increase incomes, and to increase the number of households in Roxbury on the demand side; and a Unified Development Strategy to improve the merchandising mix in Dudley Square by cooperative development ventures in order to compete successfully with probable improvements in competing retail centers by the year 2000.

Meetings will be scheduled as soon as possible between a Dudley Square retail task force and appropriate public officials to prepare plans, schedules, and an operating budget for the Immediate Action Strategy.

Detailed descriptions of the Economic Development Strategy and the Unified Development Strategy, for long term implementation, will be developed in a subsequent phase of this development program for Dudley Square.

I. PURPOSE AND INVENTORY

The purposes of this report are:

- a. to present a short-range retail development program (Phase I) for the Dudley Square Business District and an Immediate Action Strategy for achieving the Phase I program; and
- b. to present a long-range retail development program (Phase II) for Dudley Square and to propose an Economic Development Strategy on the demand side, and a Unified Development strategy on the supply side to achieve the Phase II program.

The Dudley Square Business District comprises an area of approximately 60 acres bounded by Melnea Cass Boulevard on the north, Harrison Avenue on the east, St. James Street on the south, and Shawmut Avenue on the west (see DUDLEY SQUARE map, page 3). The BRA prepared a "Use and Condition Survey" of the Dudley Square Business District in November 1989. This survey information is organized into two basic groups for the purposes of this report:

1. Retail, Consumer Services & Banks, comprising 70 establishments with first floor access occupying approximately 246,000 s.f. of floor space; and
2. Offices & Other Activities, comprising 158 other locations with approximately 976,000 s.f. of occupied and vacant non-residential and residential space.

The total Space-Use Inventory, therefore, comprises 228 establishments and locations in approximately 1.2 million square feet of occupied and vacant floor space.

The Retail, Consumer Services & Banks establishments constitute the retail development programs for this report. These establishments are organized further into groups that reflect customer spending patterns and that are used by the U.S. Census for reporting retail sales information. These are:

- a. General Merchandise, Apparel, Furniture and Other shopping goods stores in which customers do comparison shopping, identified by the acronym GAFO ;
- b. Miscellaneous Retail stores, Food stores, and Eating & Drinking Places which are characterized as Convenience establishments; and
- c. Consumer Services & Banks which include establishments such as personal and repair services, medical and dental services, and banks and other financial services that typically occupy retail store space with first floor access for customers.

In the Market Analysis which follows this presentation of the retail development programs, sales estimates are developed for the GAFO & Convenience retail establishments only. The amount of space allocated to Consumer Services & Banks then is projected in proportion to the increase in GAFO & Convenience space.

A summary table of the Dudley Square Space Use Inventory follows on page 2.

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SUMMARY: DUDLEY SQUARE SPACE USE INVENTORY

<u>Retail</u>	<u>No.</u>	<u>Square Feet</u>
General Merchandise	2	35,400
Apparel & Accessories	13	28,300
Furniture, Home Furnishings, etc.	2	34,000
<u>Other Shopping Goods</u>	<u>2</u>	<u>6,000</u>
Subtotal <u>GAFO</u> (Shopping Goods) Stores	19	103,700
Miscellaneous Retail	8	46,400
Food Stores	7	22,200
<u>Eating & Drinking Places</u>	<u>17</u>	<u>30,700</u>
Subtotal <u>Convenience</u> Retail	32	99,300
Consumer Services	16	30,300
<u>Banks (First Floor)</u>	<u>3</u>	<u>13,000</u>
Subtotal <u>Consumer Services & Banks</u>	<u>19</u>	<u>43,300</u>
Total <u>Retail, Consumer Services & Banks</u>	70	246,300
Offices, Organizations &		
Other Non-Residential Locations	37	423,900
Vacant Non-Residential Locations	52	407,200
<u>Residential Locations (Occupied and Vacant)</u>	<u>69</u>	<u>144,700</u>
Total <u>Offices & Other Locations</u>	158	975,800
GRAND TOTAL ALL LOCATIONS	228	1,222,100

A detailed table of the establishments and locations summarized above is included in Appendix A, along with a table comparing the BRA survey with the inventory compiled for this report. The BRA survey shows a total of 1,213,726 s.f. compared with the total above of 1,222,100 s.f. The small difference of 8,374 s.f. (less than 1 %) may be attributed to the rounding of individual establishment areas for this report to the nearest 100 s.f., and the addition of the Goodwill store, which is outside the Dudley Square inventory area, to the retail inventory.

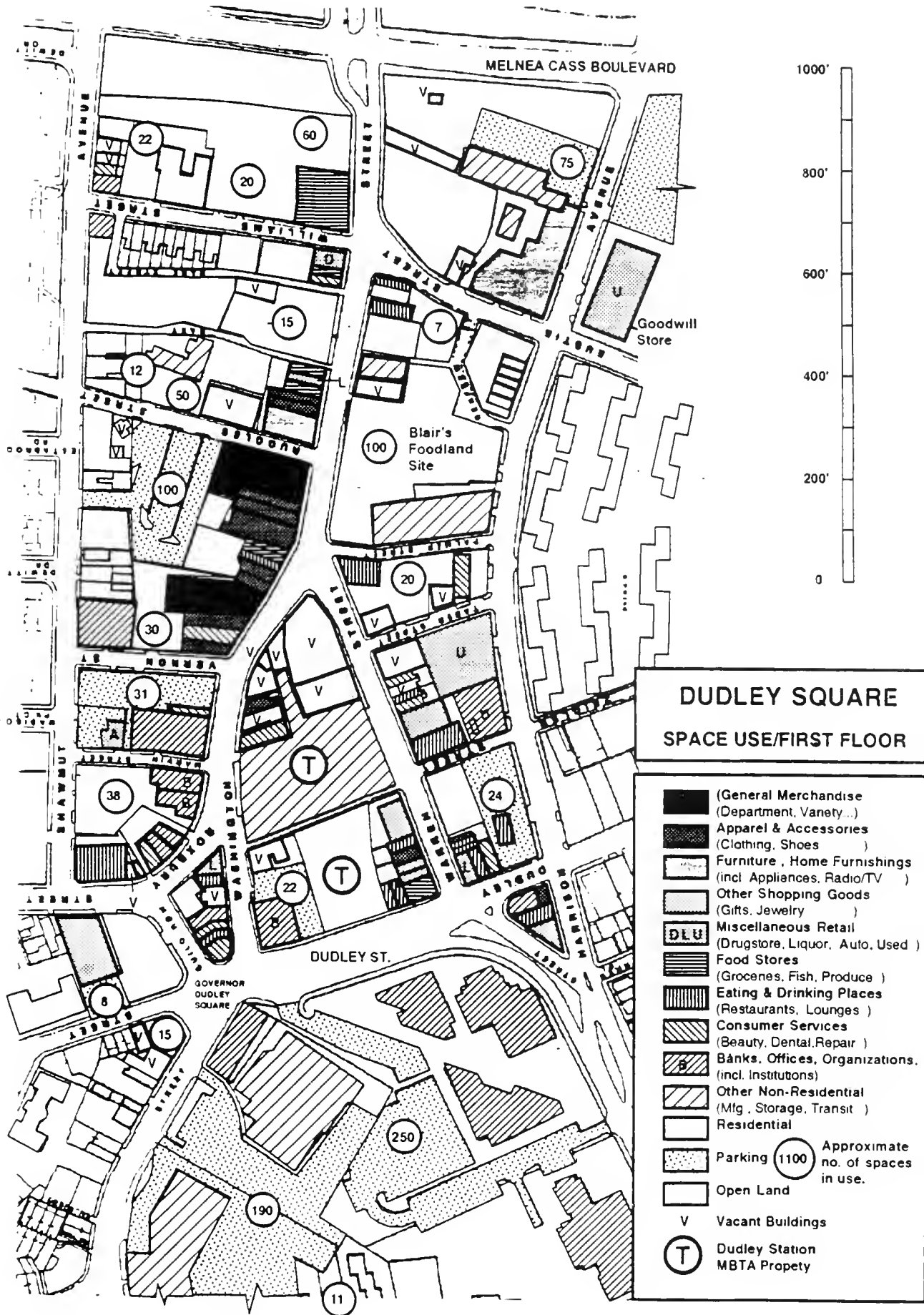
Summary of definitions:

- * GAFO = "General Merchandise, Apparel, Furniture and Other Shopping Goods" retail stores in which customers do comparison shopping.
- * Convenience = "Miscellaneous Retail Stores, Food Stores, and Eating & Drinking Places."
- * Consumer Services & Banks = "Personal & Repair Services, Medical & Dental Services, Banks & Financial Services".

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II. RETAIL DEVELOPMENT PROGRAMS

Shopping center developers and retail store companies typically seek locations in trade areas in which the numbers of households are increasing and in which incomes are increasing in "real growth" terms as well as in response to inflation. The stimulus of increases in customer expenditures on the demand side in these trade areas triggers development responses on the supply side by owners and developers of retail space. Conventional retail development is driven by demand.

Demand driven conditions do not now exist at Dudley Square. The retail establishments in Dudley Square attract most of their customers from the Roxbury area between Massachusetts Avenue on the north and Franklin Park on the south, and between Uphams Corner on the east and Roxbury Crossing on the west (see Roxbury Trade Area map, page 9). The population, the number of households, and household incomes on the demand side in this trade area have been declining for more than forty years. The population, for example, has dropped from 130,000 in 1950 to an estimated 58,000 in 1990. The inventory of retail stores in Dudley Square on the supply side has mirrored the decline in trade area demand. The existing retail program of 246,000 s.f. is a fraction of the amount of retail space that had been developed around Dudley Street Station in the first half of the twentieth century to serve the growing population of the streetcar suburbs of Roxbury and Dorchester in that period.

Since demand driven conditions do not exist at Dudley Square, a supply driven program for retail development at Dudley Square is presented in this report.

- a. A short term (Phase I) retail program is presented which calls for the leasing of 35,000 s.f. of existing vacant store space to expand the existing merchandise mix to attract more business from the Roxbury trade area; and
- b. A long term (Phase II) retail program is presented which calls for the development of 80,000 s.f. of new Retail, Consumer Services & Banks space on existing vacant land sites along Washington and Warren Streets.

In the Market Analysis section of this report, target sales volumes are established for the short term Phase I retail program and the long term Phase II retail program.

In the Action Strategies section of this report, an Immediate Action Strategy is presented to increase the share of current demand captured by Dudley Square to achieve the target sales for the Phase I retail program established in the Market Analysis. And an Economic Development Strategy and a Unified Development Strategy are proposed both to increase demand in the trade area and to increase the share of this demand to be captured at Dudley Square to achieve the target sales for the Phase II retail program established in the Market Analysis

The Dudley Square retail development programs are as follows (see RETAIL PROGRAMS map, page 7).

PHASE I: RETAIL DEVELOPMENT PROGRAM

The existing inventory of 70 establishments in 246,300 s.f. of floor space is expanded by the improvement and leasing of approximately 35,000 s.f. of existing vacant first floor space on Washington and Warren Streets to produce a total of 280,000 s.f. of Retail, Consumer Services & Banks space. GAFO & Convenience establishments comprise 230,000 s.f. of this program

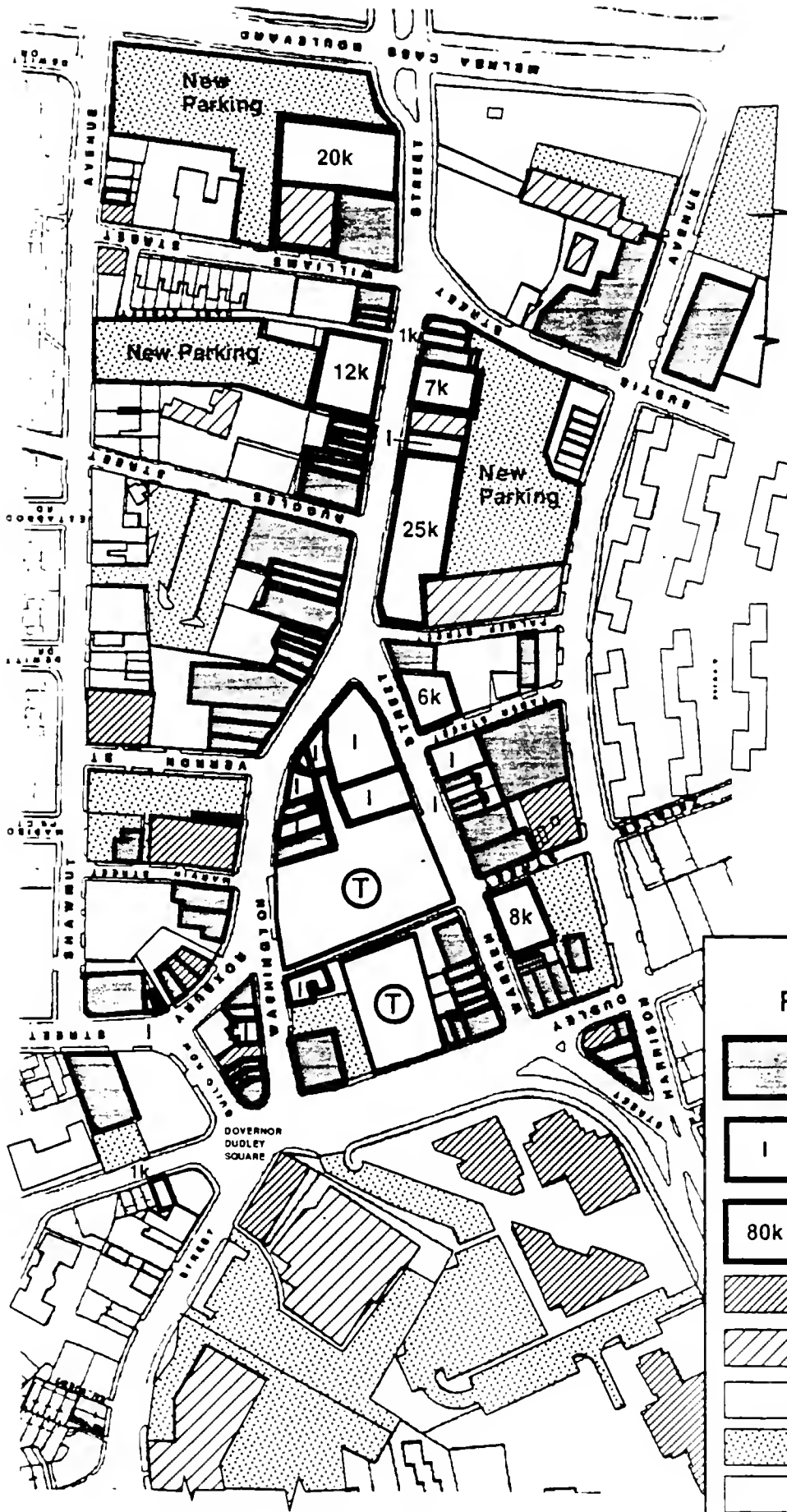
	<u>EXISTING</u>		<u>PHASE I</u>
<u>GAFO & Convenience Retail</u>	<u>No.</u>	<u>Square Feet</u>	<u>Square Feet</u>
General Merchandise	2	35,400	
Apparel & Accessories	13	28,300	Add 15,000 s.f.
Furniture, Home Furnishings, etc.	2	34,000	of GAFO
<u>Other Shopping Goods</u>	<u>2</u>	<u>6,000</u>	<u>to make</u>
Subtotal GAFO Stores	19	103,700	118,000 s.f.
Miscellaneous Retail	8	46,400	Add 13,000 s.f.
Food Stores	7	22,200	of Convenience
<u>Eating & Drinking Places</u>	<u>17</u>	<u>30,700</u>	<u>to make</u>
Subtotal Convenience Stores	32	99,300	112,000 s.f.
Total GAFO & Convenience	51	203,000	230,000 s.f.
Consumer Services	16	30,300	Add 7,000 s.f.
<u>Banks (First Floor)</u>	<u>3</u>	<u>13,000</u>	of Consumer
Total Consumer Services & Banks	19	43,300	Services & Banks
			<u>to make</u>
			50,000 s.f.
Total Retail,			
Consumer Services & Banks	70	246,300	280,000 s.f.

PHASE II: RETAIL DEVELOPMENT PROGRAM

The Phase II program adds approximately 80,000 s.f. of new first floor retail store space on existing vacant sites on Washington and Warren Streets to the Phase I program, to produce a total of 360,000 s.f. of Retail, Consumer Service & Bank space in Dudley Square. GAFO & Convenience establishments comprise 290,000 s.f. of this program.

<u>RETAIL PROGRAMS</u>	<u>PHASE I</u> <u>Square Feet</u>	<u>PHASE II</u> <u>Square Feet</u>
GAFO Retail	118,000	150,000 ^a .
<u>Convenience Retail</u>	<u>112,000</u>	<u>140,000</u> ^b .
Subtotal GAFO & Convenience	230,000	290,000
<u>Consumer Services & Banks</u>	<u>50,000</u>	<u>70,000</u> ^c .
Total		
Retail, Consumer Services & Banks	280,000	360,000 ^d .

- a. Approximately 32,000 s.f. of new GAFO store space to be developed on existing vacant sites to make a total of 150,000 s.f. of GAFO stores..
- b. Approximately 28,000 s.f. of new Convenience stores to be developed on existing vacant sites to make a total of 140,000 s.f. of Convenience establishments.
- c. Approximately 20,000 s.f. of new Consumer Services & Banks to be developed on existing vacant sites to make a total of 70,000 s.f. of Consumer Services & Banks.
- d. The merchandising mix of the 80,000 s.f. of new Retail, Consumer Services & Banks establishments to be developed in Dudley Square will be detailed when the physical design framework for Dudley Square is prepared. Elements to be considered include a supermarket, a cinema complex, and a special-theme retail complex related to the economy of Roxbury.



DUDLEY SQUARE RETAIL PROGRAMS

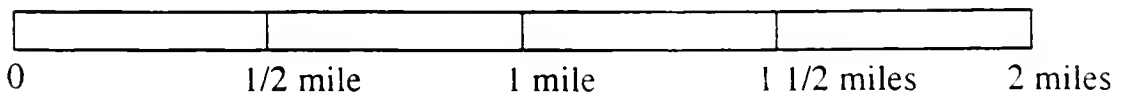
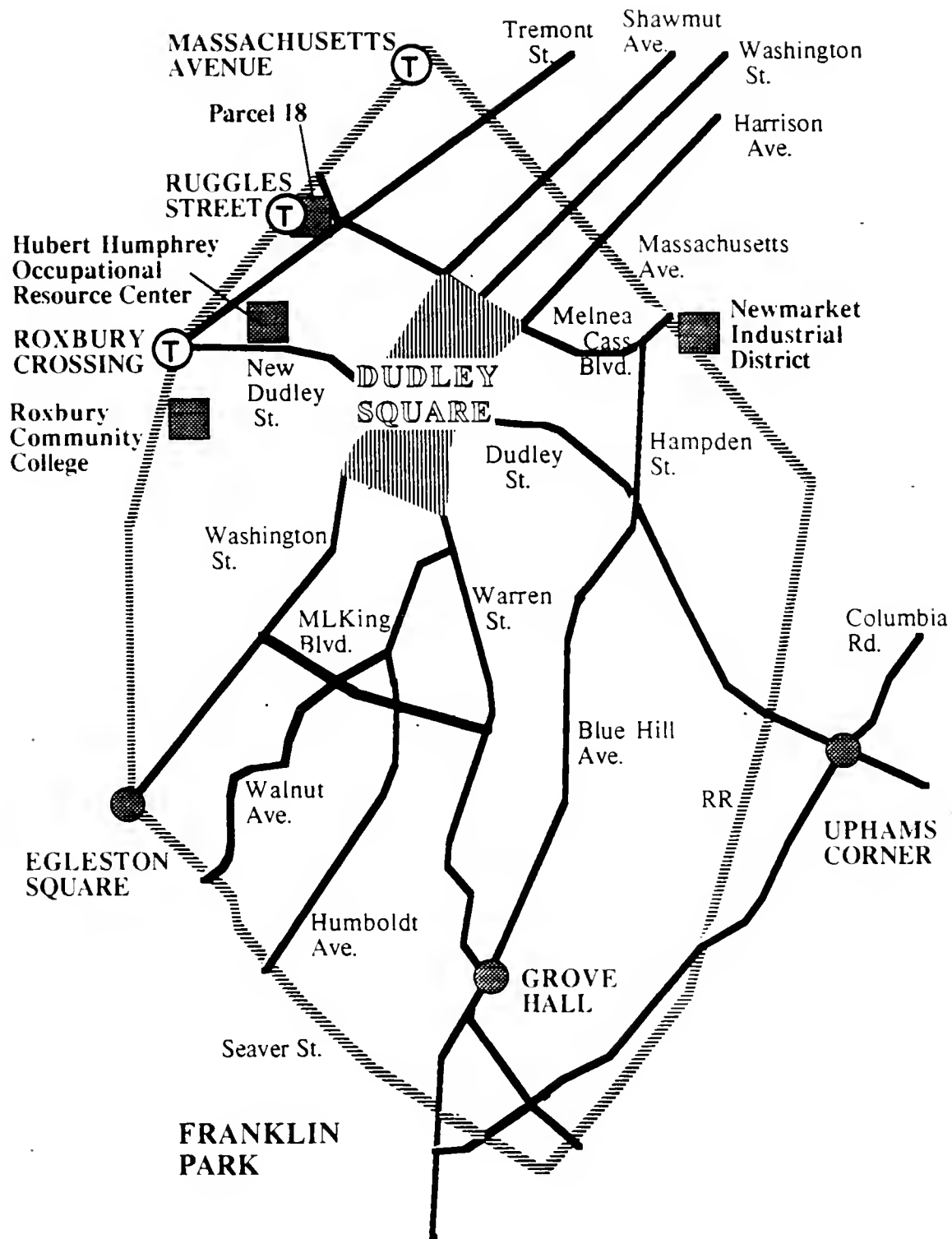
	Existing Retail, Consumer Services & Banks 246,000 s.f.
	Phase I Additions 35,000 s.f.
	Phase II Additions 80,000 s.f.
	Offices, Organizations & Institutions
	Other Non-Residential
	Residential
	Parking
	Open Land

III. MARKET ANALYSIS

The Dudley Station area, now known as Dudley Square, was one of the largest neighborhood retail districts in the City of Boston, if not the largest, through the 1940's. It served a Roxbury trade area, similar to that shown on page 9, which had a population of 130,000 in 36,000 households in 1950. The population of the trade area is estimated now at 58,000, in 20,000 households. The drop in population of 55 percent flowed from a drop of 45 percent in the number of house-holds compounded by a decrease in the number of persons per household from 3.6 in 1950, to 2.8 in 1990. The racial and ethnic character of the trade area has changed dramatically, as well. The population was approximately 20 percent black and 80 percent white in 1950. About half of the white group was Jewish, with nationality roots in eastern Europe. The other half was comprised of persons with nationality roots in Ireland, Italy and the United Kingdom. In 1990, the population is estimated to be 73 percent black and 24 percent white; and it includes an ethnic contingent of 24 percent defined in Census literature as of "Spanish origin".

The total retail program in Dudley Square comprises 103,700 s.f. of Shopping Goods, or GAFO, stores; 99,300 s.f. of Convenience establishments; and 43,300 s.f. of Consumer Services & Banks. The 70 establishments that make up this presentation of businesses are listed by name and business category in Appendix A. The retail component of Dudley Square has declined and changed dramatically along with the change in the trade area. The existing remnant of the once major shopping district is doing well, however, in comparison to other neighborhood business districts in Roxbury, Dorchester and Jamaica Plain. On the basis of the space-use inventory, interviews with a dozen merchants, and retail sales reports from Urban Decision Systems, Inc., it is estimated that the combined total of 203,000 s.f. of GAFO & Convenience retail space is operating at an average sales level of \$ 190 per square foot for an annual sales volume of \$ 38.0 million. A target sales volume is developed below for a Phase I program of 230,000 s.f. of GAFO & Convenience retail space which comprises approximately 82 percent of the total retail development program of 280,000 s.f. The other 18 % of the program, amounting to 50,000 s.f., would be occupied by Consumer Services & Banks. The Phase I GAFO & Convenience program of 230,000 s.f. is projected to operate at a sales level of \$ 200/s.f. This is \$ 10/s.f. higher than the existing level of \$ 190/s.f. The total annual sales volume would be \$ 46.0 million. This level of \$ 200/s.f. was established to demonstrate to owners of existing businesses that their sales would increase by at least \$ 10/s.f., or 5 %, at the same time that new stores are being added to create a basis from which to obtain financial support for the Immediate Action Strategy (see page 13) that would stimulate the increase in sales.

The Phase II program was established on the assumption that most of the existing vacant property with frontage on Washington Street and Warren Street would be developed with retail uses on the first floor. The total retail development program is shown as 360,000 s.f. Approximately 80 % of



ROXBURY TRADE AREA

this program, or 290,000 s.f., would be GAFO & Convenience retail. The remaining 20 %, or 70,000 s.f., would be Consumer Services & Banks. As in Phase I, a sales level of \$ 200/s.f. was established for this Phase II program of 290,000 s.f., to produce a target sales volume of \$ 58.0 million. This sales target would be achieved by an Economic Development Strategy and a Unified Development Strategy that are outlined on page 15, and that will be detailed in a subsequent report. In all phases, the dollar amounts are stated in constant 1990 dollars which do not reflect the effects of inflation.

Market Analysis for Phase I

The basic analytical tool used in this market analysis is the "gravity model". The gravity model is a mathematical formula used to calculate the shares of customer expenditures in a retail trade area that are captured by competing retail centers serving the area. The gravity model approach is sometimes referred to as "Reilly's Law", after the pioneer work of Dr. William J. Reilly in retail economics at the University of Texas in 1929. An explanation of the gravity model is included in Appendix B of this report. The appendix also includes the calculations for the "capture rates" for the Phase I and Phase II retail programs, as well as an explanation of the fair share concept cited below.

The retail market analysis for Dudley Square proceeds on a step by step basis as follows:

- a. There are 20,000 households in the Roxbury trade area. The average annual income per household is estimated at \$ 27,000 in 1990. The total income in the trade area, therefore, is (20,000 households times \$ 27,000/household) = \$ 540,000,000 (\$ 540 million).
- b. We estimate that 12 % of this income is spent in GAFO stores and 20 % is spent in Convenience establishments, on the basis of U.S. Retail Census reports. The combined figure for GAFO & Convenience retail is (12 % plus 20 %) = 32 %.
- c. GAFO & Convenience expenditures in Roxbury, therefore, amount to (total income of \$ 540 million times 32 %) = \$ 172.8 million.
- d. GAFO & Convenience sales in Dudley Square are estimated at \$ 38.0 million (page 8). Assuming for this analysis that all of this \$ 38.0 million in GAFO & Convenience sales is attracted from the trade area, the share, or capture rate for Dudley Square is (\$ 38.0 million in sales divided by \$ 172.8 million in expenditures) = 22.0 %.
- d. If Roxbury residents make 22 % of their GAFO & Convenience store expenditures in Dudley Square, then they make the remainder of 78 % of their expenditures in All Other Retail places.

We can set up a gravity model equation that works with only these two retail elements: Dudley Square, and All Other Retail. And we use this gravity model to calculate the capture rates for the Phase I and Phase II retail programs for Dudley Square (see Appendix B).

- e. The Phase I GAFO & Convenience program is 230,000 s.f. (page 5).
- f. Operating at a target level of \$ 200/s.f., this program would achieve sales of (230,000 s.f. times \$ 200/s.f.) = \$ 46.0 million.

- g. Assuming that the number of households and incomes in the Roxbury trade area would remain stable in the early 1990's, the area would continue to generate GAFO & Convenience expenditures of \$ 172.8 million a year (in constant 1990 dollars).
- h. The target sales volume of \$ 46.0 million would require a capture rate of ($\$ 46.0 \text{ million in sales divided by } \$ 172.8 \text{ million in expenditures}$) = 26.6 %.
- i. On the other hand, the increase in the size of the GAFO & Convenience component, from 203,000 s.f. to 230,000 s.f. would increase the capture rate to 24.2 % (see Appendix B). This would produce a fair share sales volume of (24.2 % times \$ 172.8 million) = \$ 41.8 million. This is \$ 4.2 million less than the target sales volume of \$ 46.0 million. (The fair share concept is explained in Appendix B).
- j. The increase in sales of \$ 4.2 million, or 10 %, that would be required to produce the target sales volume of \$ 46.0 million could be achieved by improving the quality of the Dudley Square retail experience by improving public safety, maintenance, parking, design, and marketing, as explained in Appendix B.
- k. These improvements would comprise the Immediate Action Strategy described on page 13. The expenses of the Immediate Action Strategy would be paid in whole or in part from income to be derived from the increase in sales that would be stimulated by the Action Strategy.

Market Analysis for Phase II

- a. The Phase II program of GAFO & Convenience retail space to be accommodated on existing vacant land sites on Washington and Warren Streets is 290,000 s.f.. This program would operate at a target level of \$ 200/s.f. to produce an annual sales volume of ($290,000 \text{ s.f. times } \$ 200/\text{s.f.}$) = \$ 58.0 million.
- b. Assuming that all of these sales would be derived from the Roxbury Trade Area, the required capture rate for the Phase II program would be ($\$ 58.0 \text{ million in sales divided by } \$ 172.8 \text{ million in expenditures}$) = 33.6 %.
- c. On the other hand, the fair share capture rate produced by the gravity model would be 28.7 % (from Appendix B); and the fair share sales volume would be (28.7 % times expenditures of \$ 172.8 million) = \$ 49.6 million.
- d. The target sales volume of \$ 58.0 million is \$ 8.4 million, or 17 %, higher than the fair share sales volume of \$ 49.6 million.
- e. An increase of \$ 8.4 million, or 17 %, to achieve the target sales volume of \$ 58.0 million could not be achieved by improvements in the quality of the retail experience on the supply side alone, as outlined in the Immediate Action Strategy, since most of those improvements already would have been accomplished.
- f. We would have to look to improvements on the demand side, therefore, that would increase total income and expenditures in the trade area to a level which would yield the target sales volume of \$ 58.0 million at the fair share capture rate of 28.7 %

- g. Since sales amount to 28.7 % of expenditures, we can divide the target sales volume of \$ 58.0 million by 28.7 % to produce a required expenditures level of \$ 202.1 million.
- h. And since expenditures amount to 32 % of income, we can divide the expenditures of \$ 202.1 million by 32 % to produce a required total income of \$ 631.6 million for the Roxbury trade area.
- i. This income amount of \$ 631.6 million is \$ 91.6 million, or 17 %, higher than the 1990 trade area income of \$ 540 million.
- j. It is apparent that increases would be required both in the number of households in the trade area and in the average income per household in order to achieve the total income of \$ 631.6 million necessary to produce the target sales volume of \$ 58.0 million to support the Phase II GAFO & Convenience program.
- k. An Economic Development Strategy designed to achieve increases in the number of households and in incomes on the demand side of the Dudley Square retail equation, and a Unified Development Strategy designed to increase the capture rate as well as to attract additional customers from outside the trade area are proposed on page 15. Both of these strategies will be detailed in a subsequent report.

IV. ACTION STRATEGIES

The existing GAFO & Convenience retail program of 203,000 s.f. in Dudley Square is operating at an average sales level of approximately \$ 190 per square foot to produce a total sales volume of \$ 38.0 million a year.

The Phase I retail program of 230,000 s.f. is proposed to operate at an average sales level of \$ 200 per square foot to produce a sales volume of \$ 46.0 million a year.

This is \$ 4.2 million, or 10 %, higher than the fair share sales volume of \$ 41.8 million derived for that program by a standard capture rate analysis using a gravity model.

The Phase II retail program of 290,000 s.f. is proposed to operate at an average sales level of \$ 200 per square foot to produce a sales volume of \$ 58.0 million a year.

This is \$ 8.4 million, or 17 %, higher than the fair share sales volume of \$ 49.6 million derived for that program by a standard capture rate analysis using a gravity model..

Aggressive Action Strategies would be required to increase the sales volumes from conventional fair share levels to the higher target levels needed to encourage new stores to enter the Roxbury market

- a. An Immediate Action Strategy is proposed for Phase I, to improve the quality of the retail experience at Dudley Square, on the supply side, so as to attract more business from the existing household and income base in Roxbury; and
- b. An Economic Development Strategy and a Unified Development Strategy are proposed for Phase II, to increase the number of households and to increase incomes in Roxbury on the demand side, as well as to improve the merchandising mix in Dudley Square dramatically on the supply side in order to compete successfully with probable improvements in competing retail centers by the year 2000.

An Immediate Action Strategy for Phase I

Create a Dudley Square retail task force to pursue the following actions:

1. Meet with Area B police officials to adopt a Public Safety Compact for Dudley Square that will spell out the plans and schedules, the personnel and equipment requirements, and the related public and private costs, for public safety program elements such as:
 - a. on-foot patrols by police officers with frequent in-store visits during business hours;
 - b. 24 hour in-store surveillance systems, where warranted, with a central control station;
 - c. strict enforcement of posted no-trespassing areas;
 - d. strict enforcement of proper on-street and off-street parking practices.

2. Meet with appropriate public officials and others to adopt a maintenance program:
 - a. to establish effective street-cleaning and sidewalk cleaning schedules;
 - b. to establish effective surface treatment, cleaning and maintenance procedures for vacant lots, public and private.
- ✓ 3. Meet with appropriate public officials to adopt a parking program:
 - a. to establish paid and by-permit secure off-street parking areas for long-term users such as retail, service and office employees and managers, and transit riders;
 - b. to designate secure on-street and off-street parking areas for short-term users such as customers and clients including consideration of special permits and validation approaches.
- ✓ 4. Meet with appropriate public officials and others to adopt design criteria and implementation procedures:
 - a. to encourage high quality improvements of storefronts, facades and signs on existing properties and properties undergoing rehabilitation;
 - b. to encourage the installation of appropriate street lights, sidewalk pavement, street trees, trash receptacles, and other street furniture.
- ✓ 5. Meet with appropriate public officials and others to institute a festival marketing program that will celebrate the ethnic and racial diversity of Roxbury with weekend and holiday public markets and festivals centered on the former Blair's Foodland property.
6. Engage a consortium of real estate brokers to undertake the leasing of the 35,000 s.f. of existing vacant space that comprises the Phase I expansion program for Dudley Square.
7. Meet with appropriate public officials and others to consider the establishment of a Retail Academy:
 - a. to offer education, training, and placement in retail and services occupations to Roxbury residents; and
 - b. to provide support services, such as day care, for children of parents employed in Dudley Square.
8. Meet with appropriate public officials and others to prepare operating budgets for the Immediate Action Strategy, and to work out ways and means of supporting the public and private costs of the Action Strategy.

The increase in sales of 10 % for the Phase I retail program from a fair share amount of \$ 41.8 million to a target amount of \$ 46.0 million could be generated by the aggressive pursuit of the Immediate Action Strategy. There is ample evidence in the shopping center industry of situations where experienced retail development companies have turned-around failing or moribund retail properties by creative management practices, such as those described above, that are sensitive to the markets to be served.

An Economic Development Strategy for Phase II

The Market Analysis for Phase II was based on 1990 sales estimates which do not reflect the effects of the Immediate Action Program proposed for Phase I. The fair share sales volume of \$ 49.6 million for Phase II (page 11) was developed without reference to the increase in sales that would be generated by the short-term Phase I program. It would be a conservative base, therefore, on which to build the Phase II retail program. The target sales volume established for Phase II is \$ 58.0 million. This is \$ 8.4 million, or 17 %, higher than the conservative fair share amount of \$ 49.6 million. If the fair share base was higher than \$ 49.6 million because of the positive impact of the Phase I program, there still would be a significant gap between this base figure and the target sales amount of \$ 58.0 million. In addition, the probability of additions to the AllOtherRetail component and the improvement of transit access to downtown Boston along Washington Street by the year 2000, must be considered. Both of these improvements would increase the attracting power of the retail competition in the gravity model, and would tend to divert Roxbury customers from Dudley Square to downtown Boston. It would be prudent, therefore, to examine the prospects for improvements on the demand side that would lead to an increase in the number of households and increases in incomes in the Roxbury trade area; and then to increases in expenditures and sales in the Roxbury trade area. And it would be useful, as well, to continue improvements on the supply side to reinforce the effects of the Phase I Immediate Action Strategy.

The challenge established for the Phase II action program, therefore, is to generate the full increase of 17 %, or \$ 8.4 million, required to achieve the target sales volume of \$ 58.0 million established for the Phase II retail program. This assumes that any increases that would have been generated by the Phase I Immediate Action Program would be offset by the improvements in size and access to the AllOtherRetail competition.

The Phase II retail development program will be defined in more detail in a subsequent task of this Dudley Square work program. The analysis that follows is designed to provide an understanding of the scale of the efforts that will be required on the demand side and on the supply side to achieve the Phase II retail sales target of \$ 58.0 million in 290,000 s.f. of GAFO & Convenience retail space in Dudley Square.

- a. Assume for the purpose of illustration that half of the required increase in sales would be generated by improvements on the demand side, and half would be generated by improvements on the supply side: \$ 4.2 million in sales to be generated by each effort.
- b. Starting on the demand side: retail sales at Dudley Square represent a 28.7 % share of GAFO & Convenience expenditures in the trade area (page 11). The amount of \$ 4.2 million in sales from (a) divided by 28.7 %, therefore, calls for an additional \$ 14.6 million of GAFO & Convenience expenditures to be made by trade area households.
- c. GAFO & Convenience expenditures, in turn, represent 32 % of household income. The amount of \$ 14.6 million in GAFO & Convenience expenditures divided by 32 %, therefore, calls for an additional \$ 45.6 million in household income in the trade area.
- d. There are 20,000 households in the trade area in 1990. The average income per household is \$ 27,000. If all of the additional income of \$ 45.6 million would be generated by additional households with income characteristics similar to those in the trade area in 1990, then (\$ 45.6 million divided by \$ 27,000/household) = 1,689 additional households required over a period of 10 years to support half of the increase in sales targetted for the Phase II retail development program by the year 2000. This works out to an average of 170 households a year, or a modest growth rate of slightly less than 1 % a year. Then, assuming that some portion of the required increase in household income would be credited to existing households, the required rate of households to be added would be somewhat lower than 170 units a year. For preliminary discussion purposes, therefore, we are indicating that the addition of 100 to 200 households a year, at current income levels, will be required in the Roxbury trade area to provide support for the Phase II retail development program at Dudley Square.
- e. This rate of 100 to 200 additional households a year implies a parallel increase in job opportunities in the Boston area for the persons who would be creating the demand for the additional housing in Roxbury. Some of these jobs would be created in the retail, service and office establishments to be developed in Dudley Square. The increase of 115,000 s.f. of Retail, Consumer Services & Banks space in the Phase I and Phase II retail development programs and the increased business in the existing stores and services, for example, would generate 300 to 400 retail and service jobs in Dudley Square. Additional openings would be created in offices and institutions to be developed in Dudley Square. What is emerging from these preliminary considerations is an apparent need for a framework to weave the strands of expenditures and sales, of supply and demand, and of housing and jobs into nothing less than a comprehensive Economic Development Strategy for Roxbury that would be focused on Dudley Square.

The concluding elements of the overall strategy outlined in this report are the improvements on the supply side that would generate the other \$ 4.2 million in increased sales from (a) required to support the Phase II retail program.

A Unified Development Strategy

The increase in GAFO & Convenience retail sales to support the Phase I retail program would be generated by improvements in the supply side alone, as described in the Immediate Action Strategy on page 13. This would entail improvements in public safety, in maintenance, in parking, in design, and in marketing which would stimulate an increase in sales of at least 10 % over the fair share sales volume calculated by the gravity model. The remaining element of supply side action available to address the \$ 4.2 million increment of sales needed to achieve the Phase II target amount of \$ 58.0 million is merchandising. The single most effective way to improve the performance of a retail center is to introduce an exciting retail attraction into the merchandising mix. This might be a famous-name store, such as Bloomingdale's, or Saks Fifth Avenue, or Neiman-Marcus, which has the proven ability to attract customers from an entire metropolitan area to a single location. Or it might be a one-of-a-kind store, or a complex of stores with a special theme, that may be attractive to a single segment of the market, but would attract customers in that market segment from an entire metropolitan area, and from out of town, as well.

Special retail attractions are costly necessities for successful retail centers. Developers literally buy famous-name stores, for example, to enhance the values of their retail centers. And they support the costs of these attractive acquisitions by deriving high rents from the smaller conventional stores in the retail centers that benefit in turn from the increases in customer traffic generated by the famous-name stores.

A famous-name store such as Bloomingdale's is likely to be out of reach for Dudley Square. An alternate possibility is proposed for consideration, however. This would involve the organization of a development entity that would have the ownership structure and the financial capacity to offset the costs of creating a special-theme-complex from income derived from other rent paying activities in a unified development project.

This Unified Development Strategy could encompass a group of adjacent properties with multiple owners, or a whole city block, or a group of blocks. It could involve joint development action with public agencies which own properties within a block: such as the MBTA at Dudley Station, or the BRA at Blair's Foodland. This strategy will call for the highest degree of cooperation among private owners, and between private owners and public agencies.

The Unified Development Strategy will be tested in a subsequent report in this continuing effort to revitalize Dudley Square as a vital commercial and community center for Roxbury.

APPENDIX A.

DUDLEY SQUARE SPACE USE INVENTORY

SUMMARY TABLE	1.
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SUMMARY TABLE

DUDLEY SQUARE SPACE USE INVENTORY

SUMMARY TABLE

	No.	Sq. Feet
GENERAL MERCHANDISE	2	35400
APPAREL & ACCESSORIES	13	28300
FURNITURE, HOME FURNISHINGS & c.	2	34000
OTHER SHOPPING GOODS	2	6000
SUBTOTAL: GAFO	19	103700
MISCELLANEOUS RETAIL	8	46400
FOOD STORES	7	22200
EATING & DRINKING PLACES	17	30700
SUBTOTAL: CONVENIENCE	32	99300
CONSUMER SERVICES	16	30300
BANKS (First Floor)	3	13000
SUBTOTAL: CONSUMER SERVICES & BANKS	19	43300
TOTAL: RETAIL, CONSUMER SERVICES & BANKS	70	246300
OFFICES & ORGANIZATIONS (First Floor)	9	27700
BANKS/OFFICES/ORGANIZATIONS (Upper Floors)	8	41500
OTHER NON-RESIDENTIAL (First Floor)	12	227100
OTHER NON-RESIDENTIAL (Upper Floors)	8	127600
SUBTOTAL: OFFICES & ORGANIZATIONS and OTHER NON-RESIDENTIAL SPACE	37	423900
SUBTOTAL: NON-RESIDENTIAL (First Floor)	91	501100
SUBTOTAL: NON-RESIDENTIAL (Upper Floors)	16	169100
TOTAL: NON-RESIDENTIAL SPACE	107	670200
VACANT (First Floor)	24	76400
VACANT (Upper Floors)	28	330800
TOTAL: VACANT NON-RESIDENTIAL	52	407200
RESIDENTIAL (First Floor)	34	52500
RESIDENTIAL (Upper Floors)	35	92200
TOTAL: RESIDENTIAL SPACE	69	144700
SUBTOTAL: ALL FIRST FLOORS	149	630000
SUBTOTAL: ALL UPPER FLOORS	79	592100
GRAND TOTAL: All Uses/All Floors	228	1222100

GAFO RETAIL

GAFO RETAIL ESTABLISHMENTS

	No.	Sq. Feet
GENERAL MERCHANDISE		
Woolworth, F.W. (2201 Wash.)		13400
Robell's Department Store (2 floors)(2261 Wash.)		22000
Subtotal: General Merchandise	2	35400
APPAREL & ACCESSORIES		
New York Fashions (Shoes)(2175 Wash.)		2000
New York Imports (2179 Wash.)		2000
Alpha & Omega Footwear (2219 Wash.)		1300
Royce Shop (2225 Wash.)		4000
Looking Good (2235 Wash.)		6200
Carrolls (2255 Wash.)		3000
Kims Kaps (2259 Wash.)		1500
Roger's Cosmetics, Inc. (2275 Wash.)		2400
J & B Men's Wear (2285 Wash.)		2000
Callahan's Men's Wear (155 Dudley)		700
Foot Stop (58 Warren)		400
KLC Ladies Shoes Outlet (51 Warren)		900
Manhattan Square Fashions (2306 Wash.)		1900
Subtotal: Apparel & Accessories	13	28300
FURNITURE, HOME FURNISHINGS, APPLIANCES		
New York Radio and TV (2193 Wash.)		4000
Harrison Home Center (1003 Harrison)		30000
Subtotal: Furniture, Home Furnishings &c.	2	34000
OTHER SHOPPING GOODS		
Spin City Records (76 Warren)		1500
Calvey's Giftware & Jewelry (32 Warren)		4500
Subtotal: Other Shopping Goods	2	6000

CONVENIENCE

CONVENIENCE RETAIL ESTABLISHMENTS

	No.	Sq. Feet
MISCELLANEOUS RETAIL		
Kornfield Pharmacy (2121 Wash.)		2000
Simons Liquor Store (2171 Wash.)		1400
Dudley Liquor Mart (150 Dudley)		1800
Nubian Notions 2 (39 Warren)		3900
Giant Liquor (6 Roxbury)		1900
Goodwill Store (1010 Harrison)		17000
A-M Used Auto Parts (1149 Harrison)		16300
Bill's Service Center 814 Shawmut)		2100
Subtotal: Miscellaneous Retail	8	46400
FOOD STORES		
Tropical Foods (1+ floors)(2101 Wash.)		12900
Washington Fruit (2123 Wash.)		1000
Simons Seafood (2167 Wash.)		1400
Puritan Bakery (2173 Wash.)		2000
Chi Chi Store (2249 Wash.)		1000
Daily Fish (2251 Wash.)		1500
Nubian Notions 1 (146 Dudley)		2400
Subtotal: Food Stores	7	22200
EATING & DRINKING PLACES		
Ronnie's Subs (2253 Wash.)		1500
Joe's Jaguar (39 Roxbury)		5400
Ugi's Sub Shop (72 Warren)		1000
Spinale's Sandwich Shoppe (154 Dudley)		700
Church's Chicken (160 Dudley)		1400
Peking House (56 Warren)		1000
Dudley Pastry & Restaurant (52 Warren)		1000
Golden Pagoda (49 Warren)		3100
Max's Pizza (142 Dudley)		900
Joe's Famous Steaks (140 Dudley)		1000
Mickey's Lounge (2263 Wash.)		1000
Silver Slipper (2285 Wash.)		1300
Dudley Square Cafe (38 Warren)		4500
Joe's Sub Shop (28 1/2 Warren)		800
Studio 88 (2 Warren)		2800
El Ambajador (2136 Wash.)		2100
Highland Tap (2128 Wash.)		1200
Subtotal: Eating & Drinking Places	17	30700
TOTAL CONVENIENCE	32	99300

CONSUMER SERVICES BANKS

CONSUMER SERVICES & BANKS

No. Sq. Feet

CONSUMER SERVICES

Progressive Barber Shop (716 Shawmut)	900
Teahouse of the Almighty (2131 Wash.)	1000
Mr. G's Beauty Salon (2277 Wash.)	2400
Dr. Robinson (Oral Surgeon) (2315 Wash.)	1800
Jan's Beauty Salon (29 Roxbury)	1300
Brummitt & Kelly Locksmiths (33 Roxbury)	300
U.S. Postoffice (2 levels)(44 Roxbury)	11000
Dental Office (Dudley)(158 Dudley)	700
Expert Shoe Repair (57 Warren)	900
Check's Cashed (55 Warren)	900
Drain's House of Style (2285 Wash.)	1300
Food Stamp Center (2391 Wash.)	1300
Bowen's One Hour Cleaners (2328 Wash.)	2400
Lafi's Beauty Salon (28 Warren)	800
Annabelle's Beauty Shop (30 Warren)	800
Bailey's Laundry/Cleaner (1135 Harrison)	2500
Subtotal: Consumer Services	16 30300

BANKS (first floor)

Boston Bank of Commerce (2343 Wash.)	3500
Boston Five Cents Savings Bank (2345 Wash.)	2800
Bank Of Boston (2364 Wash.)	6700
Subtotal: Banks	3 13000

TOTAL: CONSUMER SERVICES & BANKS 19 43300

OFFICES and OTHER NON-RESIDENTIAL

OFFICES, ORGANIZATIONS; OTHER NON-RESIDENTIAL SPACE		Upper Floors	
	No. Sq. Feet		
OFFICES, ORGANIZATIONS			
Boston Bank of Commerce (2343 Wash.)	0	6300	
Boston Gas Co et al (11 Roxbury)	1400		
Callianos Insurance Agency (25 Roxbury)	1600		
Roxbury Area Council et al (62-78 Warren)	2500	6600	
Best Beauty Supply et al (2377 Wash.)	2000	4000	
Elks Club (720 Shawmut Ave.)	1800	3600	
Islamic Society (722 Shawmut Ave.)	1900	3800	
Green, Lawyer (2nd Floor)(2235 Wash.)	0	5800	
Salvation Army (23 Vernon)	3800	3800	
Social Security (2337 Wash.)	7900	7600	
DES (rehab in progress) (2337 Wash. rear)	4800		
Subtotal: Offices, Organizations	9	27700	8 41500
OTHER NON-RESIDENTIAL			
Office/Storage/Other (25 Ruggles St)	4900	10300	
BRA Office et al (2406 Washington)	7100	5200	
Modern Electroplating Co. Inc.(2430 Wash.)	36100		
Hurley Wire & Cable Co. (2452 Wash.)	44000		
Roxbury Boys Club (115 Warren)	.		
Roxbury Municipal Courthouse (85 Warren)	.		
Dudley Branch, Boston Public Library (65 Warren)	.		
Boston Police Department (Area B) (135 Dudley)	.	64600	88200
Edison Electric Co. installation (1159 Harrison)	15000		
Hamil Studios (2164 Wash.)	3400	6900	
Harrison Door & Window Co. et al (1127 Harrison)	17000	17000	
Harrison Home Center Warehouse (1003 Harrison)	35000		
Subtotal: Other Non-Residential	12	227100	8 127600
Total: Offices, Organizations, Other Non-Res	21	254800	16 169100
TOTAL ALL FLOORS			37 423900
* Combined in 64600			

VACANT NON-RESIDENTIAL

VACANT NON-RESIDENTIAL SPACE

	No.	First Floor Sq. Ft.	Upper Floors Sq. Ft.
22 Warren St. (Calvey's under constr.)		4500	0
716 Shawmut Ave.		1100	2100
714 Shawmut Ave.		1000	1900
8 Williams St.		7700	35000
21 Dade St.		2300	4600
2167 Washington St. (rear of Simons)		2100	27100
9 Ruggles St.		4700	9300
2172 Washington St. (next to Hamil's)		3300	6600
2203 Washington St. (over Woolworth)		0	26700
2221 Washington St. (over Alpha &)		0	1300
2223 Washington St.(over Royce)		0	8000
2283 Washington St. (Timothy Smith Bldg)		0	16000
29 Roxbury St. (over Boston Gas)		0	4700
33Roxbury St. (B&K)		0	500
35 Roxbury St. (Next to B&K)		300	500
37-51 Roxbury St.(over Joe's Jaguar)		0	12100
95 Dudley St. (Erickson)		1400	4100
2407 Washington St. (rear of 95 Dudley)		4300	2000
60-Warren St. (over Dudley Liquor)		0	10800
61 Warren St. (over Nubian Notion)		0	26100
2 Roxbury St. (over Giant Liquor)		0	2400
2371 Washington St. (Warren Bank)		1500	
9 Warren St. (Ferdinand's)		13800	45200
17 Warren St. (Ferdinand's)		7100	42500
18-20 Warren St.		2000	4000
28a Warren St. (next Annabelle's)		800	0
2276 Washington St. (under the El)		1800	0
2282 Washington St. (next ")		500	0
2286 Washington St. (next ")		3000	8900
2304 Washington St (next ").		1900	11200
2328 Washington St. (over Bowen's))		0	8600
2360 Washington St. (Patio Lounge)		2700	0
12 Taber St. (Bailey's rear)		1300	0
2080 Washington St. (historic)(in 16 Eustis)			
2080 Washington St. rear (historic)(in 16 Eustis)			
16 Eustis St. (historic fire station)		5900	5800
St. James St. (from BRA survey)		1400	2800
Subtotal: Vacant Space by Floors	2 4	76 400	2 8 330 800
TOTAL VACANT ALL FLOORS			5 2 407 200

RESIDENTIAL

RESIDENTIAL PROPERTIES

	No.	First Floor No. Sq. Feet	Upper Floors
37 Williams St.		9400	16700
718 Shawmut Ave.		0	1800
746 Shawmut Ave.		3600	10800
750 Shawmut Ave.		3100	9300
752 Shawmut Ave.		1900	5700
772 Shawmut Ave.		1800	3600
788 Shawmut Ave.		900	1300
792r Shawmut Ave.		600	600
794 Shawmut Ave.		1400	2800
St. James St. - 12 buildings		18600	17200
1107-1115 Harrison Ave. - 5 buildings		4000	8000
24-40 Williams St. - 9 buildings		7200	14400
Subtotal: Residential Space	34	52500	35 92200
TOTAL RESIDENTIAL ALL FLOORS			69 144700
GRAND TOTAL: ALL SPACE, ALL FLOORS			228 1222100

SPACE USE SUMMARIES MFL/BRA

DUDLEY SQUARE: SPACE USE INVENTORIES: MFL & BRA

MFL SUMMARY

	NO.	SQ. FT
GENERAL MERCHANDISE	2	35400
APPAREL & ACCESSORIES	13	28300
FURNITURE & HOME FURNISHINGS	2	34000
OTHER SHOPPING GOODS	2	6000
SUBTOTAL GAFO	19	103700
MISCELLANEOUS RETAIL *	8	46400
FOOD STORES	7	22200
EATING & DRINKING PLACES	17	30700
SUBTOTAL CONVENIENCE	32	99300
CONSUMER SERVICES	16	30300
BANKS (First Floor)	3	13000
SUBTOTAL C.S. & BANKS	19	43300
TOTAL RETAIL, CONSUMER SERVICES & BANKS	70	246300
OFFICES & ORGANIZATIONS (First)	9	27700
OFFICES & O (Upper)	8	41500
SUBTOTAL OFFICES	17	69200
OTHER NON-RESIDENTIAL		
OTHER NON-RES (First)	12	227100
OTHER NON-RES (Upper)	8	127600
SUBTOTAL ONR	20	354700
TOTAL NON-RESIDENTIAL	118	670200
VACANT (First)	24	76400
VACANT (Upper)	28	330800
SUBTOTAL VACANT	48	407200
RESIDENTIAL (First)	34	52500
RESIDENTIAL (Upper)	35	92200
SUBTOTAL RESIDENTIAL	69	144700
ALL FIRST FLOORS	146	623200
ALL UPPER FLOORS	78	585500
GRAND TOTAL ALL SPACE	228	1222100

* Includes Goodwill Store

BRA SUMMARY

	NO.	SQ. FT
GENERAL MERCHANDISE	4	40566
APPAREL	8	14248
HARDWARE & HOME FURNISHINGS	4	25996
OTHER RETAIL	7	13642
SUBTOTAL	23	94452
DRUGS, HEALTH, BEAUTY AIDS	4	13643
AUTOMOTIVE	2	18420
FOOD	8	21151
EATING & DRINKING PLACES	17	30089
SUBTOTAL OTHER CONSUMER SERVICES	31	83303
BANKS	3	12968
SUBTOTAL C.S. & BANKS	18	32395
TOTAL RETAIL, CONSUMER SERVICES & BANKS	72	210150
OFFICE (First)		11737
OFFICE (Upper)		32431
SUBTOTAL OFFICES		44168
OTHER (First)		105268
OTHER (Upper)		112635
MFG./WAREHOUSE (First)		104032
MFG./WAREHOUSE (Upper)		48867
SUBTOTAL OTHER M/W		370802
TOTAL NON-RESIDENTIAL		625120
TOTAL NON-RES (First)		431187
TOTAL NON-RES (Upper)		193933
VACANT (First)		91171
VACANT (Upper)		333701
SUBTOTAL VACANT		424872
RESIDENTIAL (First)		52397
RESIDENTIAL (Upper)		111337
SUBTOTAL RESIDENTIAL		163734
ALL FIRST FLOORS		574755
ALL UPPER FLOORS		638971
GRAND TOTAL ALL SPACE		1213726

ALPHABETICAL

DUDLEY SQUARE INVENTORY: Alphabetical List

	First s.f.	Upper s.f.
A-M Used Auto Parts (1149 Harrison)	16300	
Alpha & Omega Footwear (2219 Wash.)	1300	
Annabelle's Beauty Shop (30 Warren)	800	
Bailey's Laundry/Cleaner (1135 Harrison)	2500	
Bank Of Boston (2364 Wash.)	6700	
Best Beauty Supply et al (2377 Wash.)	2000	4000
Bill's Service Center 814 Shawmut)	2100	
Boston Bank of Commerce (2343 Wash.)	3500	
Boston Bank of Commerce (2343)	0	6300
Boston Five Cents Savings Bank (2345)	2800	
Boston Gas Co et al (11 Roxbury)	1400	
Boston Police Department (Area B) (135 Dudley)	64600	88200
Bowen's One Hour Cleaners (2328 Wash.)	2400	
BRA Office et al (2406 Washington)	7100	5200
Brummitt & Kelly Locksmiths (33 Roxbury)	300	
Callahan's Men's Wear (155 Dudley)	700	
Callianos Insurance Agency (25 Roxbury)	1600	
Calvey's Giftware & Jewelry (32 Warren)	4500	
Carrolls (2255 Wash.)	3000	
Check's Cashed (55 Warren)	900	
Chi Chi Store (2249 Wash.)	1000	
Church's Chicken (160 Dudley)	1400	
Daily Fish (2251 Wash.)	1500	
Dental Office (Dudley)(158 Dudley)	700	
DES (rehab in progress) (2337 Wash. rear)	4800	
Dr. Robinson (Oral Surgeon) (2315 Wash.)	1800	
Drain's House of Style (2285 Wash.)	1300	
Dudley Branch, Boston Public Library (65 Warren)		
Dudley Liquor Mart (150 Dudley)	1800	
Dudley Pastry & Restaurant (52 Warren)	1000	
Dudley Square Cafe (38 Warren)	4500	
Edison Electric Co. installation (1159 Harrison)	15000	0
El Ambajador (2136 Wash.)	2100	
Elks Club (720 Shawmut Ave.)	1800	3600
Expert Shoe Repair (57 Warren)	900	
Food Stamp Center (2391 Wash.)	1300	
Foot Stop (58 Warren)	400	
Giant Liquor (6 Roxbury)	1900	
Golden Pagoda (49 Warren)	3100	
Goodwill Store (1010 Harrison)	17000	
Green, Lawyer (2nd Floor)(2235 Wash.)	0	5800
Hamil Studios (2164 Wash.)	3400	6900
Harrison Door & Window Co. et al (1127 Harrison)	17000	17000
Harrison Home Center (1003 Harrison)	30000	
Harrison Home Center Warehouse (1003 Harrison)	35000	0
Highland Tap (2128 Wash.)	1200	
Hurley Wire & Cable Co. (2452 Wash.)	44000	0

ALPHABETICAL

Islamic Society (722 Shawmut Ave.)	1900	3800
J & B Men's Wear (2285 Wash.)	2000	
Jan's Beauty Salon (29 Roxbury)	1300	
Joe's Famous Steaks (140 Dudley)	1000	
Joe's Jaguar (39 Roxbury)	5400	
Joe's Sub Shop (28 1/2 Warren)	800	
Kims Kaps (2259 Wash.)	1500	
KLC Ladies Shoes Outlet (51 Warren)	900	
Kornfield Pharmacy (2121 Wash.)	2000	
Lafi's Beauty Salon (28 Warren)	800	
Looking Good (2235 Wash.)	6200	
Manhattan Square Fashions (2306 Wash.)	1900	
Max's Pizza (142 Dudley)	900	
Mickey's Lounge (2263 Wash.)	1000	
Modern Electroplating Co. Inc.(2430 Wash.)	36100	0
Mr. G's Beauty Salon (2277 Wash.)	2400	
New York Fashions (Shoes)(2175 Wash.)	2000	
New York Imports (2179 Wash.)	2000	
New York Radio and TV (2193 Wash.)	4000	
Nubian Notions 1 (146 Dudley)	2400	
Nubian Notions 2 (39 Warren)	3900	
Office/Storage/Other (25 Ruggles St)	4900	10300
Peking House (56 Warren)	1000	
Progressive Barber Shop (716 Shawmut)	900	
Puritan Bakery (2173 Wash.)	2000	
Robell's Department Store (2 floors)(2261 Wash.)	22000	
Roger's Cosmetics, Inc. (2275 Wash.)	2400	
Ronnie's Subs (2253 Wash.)	1500	
Roxbury Area Council et al (62-78 Warren)	2500	6600
Roxbury Boys Club (115 Warren)		
Roxbury Municipal Courthouse (85 Warren)		
Royce Shop (2225 Wash.)	4000	
Salvation Army (23 Vernon)	3800	3800
Silver Slipper (2285 Wash.)	1300	
Simons Liquor Store (2171 Wash.)	1400	
Simons Seafood (2167 Wash.)	1400	
Social Security (2337 Wash.)	7900	7600
Spin City Records (76 Warren)	1500	
Spinale's Sandwich Shoppe (154 Dudley)	700	
Studio 88 (2 Warren)	2800	
Teahouse of the Almighty (2131 Wash.)	1000	
Tropical Foods (1+ floors)(2101 Wash.)	12900	
U.S. Postoffice (2 levels)(44 Roxbury)	11000	
Ugi's Sub Shop (72 Warren)	1000	
Washington Fruit (2123 Wash.)	1000	
Woolworth, F.W. (2201 Wash.)	13400	
* Combined in Boston Police 64600		
Subtotals: Non-Residential by Floors	501100	169100
Total Non-Residential All Floors		670200

APPENDIX B.

THE GRAVITY MODEL, OR REILLY'S LAW

The basic analytical tool used in this market analysis is the "gravity model". The gravity model is a mathematical formula used for estimating the shares of potential expenditures in a retail trade area that would be captured by competing retail centers serving the area. The capture rates are calculated by a formula that uses only two quantities: the sizes of the competing retail centers, and the average travel times for customers to each center. The gravity model approach is sometimes referred to as "Reilly's Law", after the pioneer work of Dr. William J. Reilly in retail economics at the University of Texas in 1929.

An Illustration

- a. Two retail centers are serving a trade area: (A) with 500,000 s.f., and (B) with 250,000 s.f.
- b. The average travel time for customers to either center is 10 minutes.
- c. A gravity model factor is established for each center. This factor is the size of the center in square feet divided by the square of the average travel time.
- d. The gravity model factor for center (A) is: 500,000 divided by (10 minutes)^{squared}, or $500,000/10^2$ which equals 5,000.
- e. The gravity model factor for center (B) is: $250,000/10^2$, which equals 2,500.
- f. The gravity model for calculating the percentage of customer expenditures that would be captured by center (A) is the gravity model factor for (A), which is 5,000, divided by the sum of the gravity model factors for (A) and (B), which is (5,000 plus 2,500), or 7,500.
- g. The capture rate for center (A), therefore, is (5,000 divided by 7,500) = .67, or 67 %. Center (A) would capture 67 % of customer expenditures in the trade area.
- h. Similarly, the gravity model for calculating the capture rate for center (B) would be the gravity model factor for (B), which is 2,500, divided by the sum of the gravity model factors for (A) and (B), which is (5,000 plus 2,500), or 7,500.
- i. The capture rate for center (B), therefore, is (2,500 divided by 7,500) = .33, or 33 %. Center (B) would capture 33 % of customer expenditures in the trade area.

This exercise shows that capture rates are in direct proportion to the sizes of retail centers if the travel times are the same for each retail center. Center (A) with 500,000 s.f. has a capture rate of 67 %. Center (B) with 250,000 s.f., half the size of Center (A), has a capture rate of 33 %, half the capture rate of Center (A).

Now, let us illustrate the effects of different travel times on centers of equal size:

- a. Center (A) with 500,000 s.f. has an average travel time of 10 minutes for its customers.
- b. Center (B) with 500,000 s.f. has an average time of 5 minutes for its customers.
- c. The gravity model factor for Center (A) is $500,000/10^2$, which equals 5,000.
- d. The gravity model factor for Center (B) is $500,000/5^2$, which equals 20,000.

- e. The capture rate for Center (A) is the gravity model factor for (A), or 5,000, divided by the sum of the gravity model factors for (A) and (B), which is (5,000 plus 20,000).
This becomes $(5,000 \text{ over } 25,000) = .20$, or 20 %.
- f. The capture rate for Center (B) is the gravity model factor for (B), or 20,000, divided by the sum of the gravity model factors for (A) and (B), which is (5,000 plus 20,000).
This becomes $(20,000 \text{ over } 25,000) = .80$, or 80 %.
- g. Center (B), which is the same size as Center (A), but which has a travel time that is half the travel time for Center (A), has a capture rate of 80 %. This is four times the capture rate of 20 % that applies to Center (A).

This exercise shows that capture rates are in inverse proportion to the squares of the travel times if the sizes of the centers are the same. If the travel time to Center (B) is 1/2 of the travel time to Center (A), the capture rate for Center (B) would be 4 times the capture rate for Center (A): 1/2 inverted to become 2/1, and then squared equals 4.

The Gravity Model Applied to Roxbury and Dudley Square

In Roxbury, we are dealing with two retail centers: Dudley Square, with 203,000 s.f. of retail store space, which captures 22 % of retail expenditures by Roxbury residents; and All Other Retail, whose size is unknown, which captures 78 % of retail expenditures by Roxbury residents.

Since the capture rates for each center are known, we can set up a gravity model to calculate the already known capture rate for Dudley Square, and then solve it backwards for the unknown quantity which is the gravity model factor for AllOtherRetail. The gravity model factor is a single number that represents the size of the center divided by the square of the travel time. We do not have to know the separate numbers for the size or for the travel time of AllOtherRetail to make the formula work. Furthermore, we can assume that the travel time for the Dudley Square gravity model factor is equal to (1) to simplify the calculations.

- a. The gravity model factor for Dudley Square is 203,000 divided by $(1)^2$, which equals 203,000.
- b. The gravity model factor for AllOtherRetail is the unknown (X).
- c. The capture rate for Dudley Square is 22%, or .22 (see page 10).
- d. The gravity model for the Dudley Square capture rate becomes 203,000 divided by (203,000 plus X) equals .22.
- e. Solving for X, the gravity model factor for AllOtherRetail, is 719,727.

This gravity model factor of 719,727 can be used in all subsequent equations to calculate the capture rates for the Phase I and Phase II retail development programs for Dudley Square.

Phase I: Retail Development Program

The Phase I Retail Development Program for Dudley Square is 280,000 s.f.

The GAFO & Convenience retail component is 230,000 s.f..

The Consumer Services & Banks component is 50,000 s.f.

A gravity model can be set up to calculate the capture rate for the GAFO & Convenience retail component of 230,000 s.f., as follows:

- a. The gravity model factor for the Dudley Square retail component is 230,000 s.f. divided by a travel time of (1) squared. This equals 230,000.
- b. The gravity model factor for AllOtherRetail has been calculated as 719,727 (page B-2).
- c. The capture rate for the Dudley Square component of 230,000 s.f. is the gravity model factor of 230,000 (for Dudley Square) divided by the sum of the factors 230,000 and 719,727 (for AllOtherRetail).
- d. This equation becomes 230,000 divided by 949,727, which equals .242; or a capture rate of 24.2 %.
- e. This capture rate of 24.2 % for the Phase I retail program is used in the Market Analysis on page 11.

Phase II: Retail Development Program

The Phase II Retail Development Program for Dudley Square is 360,000 s.f.

The GAFO & Convenience retail component is 290,000 s.f.

The Consumer Services & Banks component is 70,000 s.f.

- a. The gravity model factor for the Dudley Square retail component is 290,000 s.f. divided by a travel time of (1) squared. This equals 290,000.
- b. The gravity model equation is the factor of 290,000 (for Dudley Square) divided by the sum of the factors 290,000 and 719,727 (for AllOther Retail).
- c. This becomes 290,000 divided by 1,009,727, which equals .287; or a capture rate of 28.7 %.
- d. This capture rate of 28.7 % for the Phase II retail program is used in the Market Analysis on page 11.

"Fair Share" and "Quality"

The capture rate obtained from the gravity model represents a fair share situation in which the expanded retail component at Dudley Square would increase its capture rate in Roxbury in response to an increase in size alone, all other things being equal.

We have learned from experience in the shopping center industry that the capture rate can be affected by changes in the quality of the retail development involved, as well as by changes in the size of the retail development.

The things that affect quality include

- a. The kinds of stores and their price levels (merchandising).
- b. The attractiveness of storefronts, signs, pavement and lighting (the design of the physical environment).
- c. The adequacy, accessibility and cost of parking.
- d. The quality of security and maintenance.
- e. The effectiveness of marketing, or advertising and promotion.

The capture rates, and sales volumes, therefore, can be increased incrementally above fair share levels, by improvements in the five areas noted above: merchandising, design, parking, security & maintenance, and marketing.

Competition

Finally, the capture rate can be affected by changes in the size, the travel times, and the quality of the competition.

In the Market Analysis calculations for the Phase I and Phase II retail programs at Dudley Square, the size and travel time attributed to the competition, described as AllOtherRetail, remained the same for the Phase I and Phase II time periods.

If the size of All Other Retail should increase in the future, which would be the case, for example, if a major retail project is developed in downtown Boston within the next ten years; or if a major supermarket is developed somewhere else in the Roxbury Trade Area; the capture rate for All Other Retail would increase and the capture rate for Dudley Square would decrease. This would decrease the sales volume in Dudley Square in a fair share situation.

Also, if the average travel time for Roxbury residents to All Other Retail should decrease in the future, which would be the case, for example, if an efficient transit system is constructed along Washington Street from Dudley Square to downtown Boston within the next ten years; the capture rate for All Other Retail would increase and the capture rate for Dudley Square would decrease. This would decrease the sales volume in Dudley Square in a fair share situation.

The effects of these changes in the size and in travel times for the retail competition to Dudley Square could be counteracted by improvements in the quality of the Dudley Square retail experience as described in "Fair Share" and "Quality" above, and as proposed in the Action Strategies for Dudley Square.

APPENDIX C.

DUDLEY SQUARE: SELECTED BIBLIOGRAPHY (MFL113089)

1. **CARD: The Commercial Area Revitalization District Program**; BRA. September 1981.
 - a. **Dudley Station/Roxbury** (May/1979) listed as one of 17 "Approved CARD Plans."
 - b. Economic development incentives available:
 - * Industrial Revenue Bonds.
 - * Mortgage insurance available for commercial rehab/up to \$ 400,000/project/MIFA (Massachusetts Industrial Finance Agency).
 - * State Excise Tax Credit, and 25 % payroll deduction, for participation in Urban Job Incentive Program/Urban Job Incentive Bureau, MA Dept. of Manpower Development
2. **Analysis of Shopping Patterns & Retail Market Demand, Dudley Station**, NDA, October 1980.

A trade area was defined as an oval bounded by Columbus Ave. on the west, Mass. Ave on the north, curving south along Hampden St. and Blue Hill Ave., thence southwest to M.L.King Blvd. and west to Columbus just north of Egleston Square: about one mile east to west, and one and one half miles north to south. The trade area population was 25,138 in 1980. Sixty eight telephone interviews were conducted (1 % of trade area households). Principal areas for food shopping were: Dudley Station business district (Blair's Foodland was open at that time) (14 %); American Legion Highway (Stop & Shop)(13 %); Washington Park Mall (Finast supermarket at that time)(11 %); and Boylston St. (Star Market)(10 %). Principal areas shopped for apparel and shoes were: Downtown Boston, approximately 65 %; other locations in Boston, approximately 13 %; suburban shopping areas, approximately 12 %; and Dudley Station area, approximately 6 %.
3. **Potential Funding Sources, Dudley Station Area**, BRA, 9/12/84.
4. **A Profile of Dudley Square: Current Characteristics and Future Development Potential**, BRA, Draft, October 1984.(ML)
5. **Dudley Station Planning Study**, BRA, Draft, November 1984.(ML)
6. **Dudley in 2001, After the El...**, Center for whom ? Roxbury Action Program, January 1985. A project of the Community Service Program, College of Public and Community Service, University of Massachusetts at Boston.

Recommendations:

 1. Build the LRV.
 2. Establish a Dudley Square Development Authority
 3. Develop a Comprehensive Plan for Site Improvements
 4. Major Renovation of the Orchard Park Development for Continued Public Housing Use.
 5. Develop a Local Reindustrialization Policy
7. **Dudley Square, A Strategy for Neighborhood Revitalization**, BRA, 1/18/85.

NEW TOWN CENTER - HOUSING CHOICES (1500 new moderate income owner occupied units; 1,000 rehab units for owner occupants; 2,500 new moderate and market rate units in mixed-use projects) - BUSINESS PARK ECONOMIC DEVELOPMENT (2 million s.f. of

high rise office buildings; 500,000 s.f. of rehab office space; 500,000 s.f. of industrial and institutional space; 12,000 new jobs) - NEIGHBORHOOD RETAIL/SERVICE (500,000 s.f. of new retail space; rehab existing retail and service structures; renovate Dudley Station as a retail Galleria - CULTURAL/RECREATIONAL PARKS.

8. **DUDLEY SQUARE, First Interim Report, BRA, Draft 2/26/85.**
Follow-up to (7)(ML)
9. **A SURVEY OF ATTITUDES TOWARDS DEVELOPMENT IN ROXBURY.**
BELL ASSOCIATES, INC., FOR BRA, 3/6/85. (ML)
10. **Parcel 18 papers: 9/3/85; 11/11/85; 12/4/85; 12/5/85.**
11. **A PROFILE OF THE LOWER ROXBURY/SOUTH END BUSINESS DISTRICT.**
Dusp MIT students. Contains inventory of businesses. Undated. Circa 1987 ?
12. **NEIGHBORHOOD PLANNING & ZONING, THE INTERIM PLANNING OVERLAY DISTRICT, ROXBURY, A PLAN TO MANAGE GROWTH, BRA.**
6/4/87.
13. **DUDLEY STATION, CARD, AMENDMENT, BRA, 11/30/88.**
14. **PARKING PROBLEMS AND NEEDS ASSESSMENT (for Dudley CARD).**
Howard/Stein-Hudson, 1988.
15. **PARCEL 18 FACT SHEET, 7/11/88.**
Site, 5.6 acres; Office, 618,000 GSF; Hotel, 180,000 GSF; Retail, 17,000 GSF; Day Care, 13,000 GSF; 1,000 parking spaces. Includes existing zoning map for Parcel 18 and Dudley Station CARD area.
16. **Roxbury, Neighborhood Profile, 1988.**
1985 base: Population, 58,475; Households, 20,313; Racial/Ethnic composition of population in households: Black, 75 %; Hispanic, 13 %; White, 7 %; Other, 4 %.
17. **AN ECONOMIC DEVELOPMENT STRATEGY FOR THE DUDLEY COMMERCIAL AREA, BRA, 1/11/89.**
18. **Projects Underway in the Dudley Business District Area as of January 1989**
Twenty entries:
 1. Washington St. reconstruction from Dudley to Forest Hills (1990-1992): \$ 12 M
 2. Washington St. reconstruction from Dudley Street north to Herald St. (1989-1995): \$12 M
 3. New Dudley St. reconstruction to Washington St. Awaits relocation of post office. (Spring 1992): \$ 3.4 M.
 4. Parcel P-3 (6.8 ac) @ Tremont & Whittier, Ruggles Sta.: 629,000 sf office/31,000 s.f. retail/430 parking (1990): \$125 M
 5. Parcel 18 (5.6 ac) @ Ruggles Sta.: 600,000 s.f. office/25,000 s.f. retail/150-200 room hotel/1,000 parking (start 1989): \$200 M.
 6. Douglass Plaza (4 ac) @ Tremont/Columbus/Camden/Davenport: 163 h.u./7,000 s.f. commercial (start 1989): \$21 M.
 7. Parcel 22 (3.5 ac) @ Tremont/Prentiss/Ruggles: 150-200 h.u./10,000 s.f. retail (developer to be chosen in 1989): \$ 20 M.

8. Fountain Hill Square @ Fountain/Herman/Circuit: 124 h.u.(open 1989): \$ 12.5 M.
9. New Post Office @ Shawmut/New Dudley (Parcel P-2C): 40,000 s.f./100 parking spaces (1991): \$ 10 M.
10. Roxbury Heritage State Park/Dillaway-Thomas House/Visitor Center @ Nawn Factory (1989-1991): \$ 5 M.
11. Redevelopment of Dudley Terminal (advertised 1989): \$ 3 M.
12. Orange Line replacement service/electric bus (1989-1995):between \$ 15 & \$ 75M.
13. Winslow Court I & II: 24 & 100 h.u. (I open; II start 1990): \$ 2.7 M & \$ 11 M.
14. St. James Estates: 22 h.u. (open 1989): \$ 2 M+.
15. Parmalee Court, 74 h.u. (start 1989): \$ 12.5 M.
16. Roxbury Corners, 48 h.u. (start 1989): \$ 7.6 M.
17. John Eliot Square improvements (1990): \$ 1.8 M.
18. Dudley CARD (established 1979): Off-street Parking/Urban Job Incentive/Economic Development Set-Aside/Community Development Action Grant programs.
19. Dudley Station District @ Warren/Washington/Dudley/Guild Row/Roxbury (designated 1985): tax credits and grants.
20. John Eliot Square District (designated 1973): tax credits and grants.
19. State Grant Programs, BRA. May 8, 1989.
20. BOSTON SCIENCE CENTER, Final Project Impact Report/(FPIR); Final Environmental Impact Report/(FEIR), Congress Group Ventures, May 1989.
21. ROXBURY 360: A NEIGHBORHOOD RENAISSANCE, Facts & Figures, BRA. June 1989. Selected entries not noted in (18) above:
 - * Roxbury (1989)
 - * Islamic Cultural Center (Mosque) @ Elmwood & New Dudley (70,000 s.f. site): \$ 7 M.
 - * Roxbury Investment Corporation (RIC):
 - * Dudley Street Neighborhood Initiative (DNI): 15 ac., 500 H.U.(start 1990): \$64.5 M.
 - * Parcels 9 & 10: housing and mixed use
 - * State Leasing Program: 100,000 s.f. committed (1989).

